

Claims

1. Process for multi-layer material removal of a non-planar three-dimensional surface (1) of arbitrary shape with a removal means, such as a laser, operating on the surface in a point-wise fashion, wherein the removal means is used to produce a surface structure (2) on the three-dimensional surface (1), characterized in that at least one raster image (3) describing the surface structure (2) is associated with the three-dimensional surface (1) with the removal means, wherein the surface structure (2) is to be generated by multilayer material removal.
2. Process according to claim 1, characterized in that the raster image (3) is a two-dimensional map of the three-dimensional surface (1).
3. Process according to claim 1, characterized in that the raster image (3) includes pixels (4).
4. Process according to claim 2, characterized in that a gray level (5) is associated with each pixel (4).
5. Process according to claim 3, characterized in that a gray level is a measure for the depth (6) of the surface structure (2).
6. Process according to claim 4, characterized in that the quantity of material to be removed is associated with each gray level (5).
7. Process according to claim 6, characterized in that the same quantity of material is removed for each pixel (4) having the same gray level (5).
8. Process according to claim 7, characterized in that the pixels (4) having the same gray level are associated with the same layer (8).

9. Process according to claim 8, characterized in that each layer (8) is described by a plurality of adjoining polygons (9), which model the three-dimensional surface (1) as a mathematical function.
10. Process according to claim 9, characterized in that the mathematical function forms a basis for controlling the laser (12) in a three-dimensional coordinate system.
11. Process according to claim 10, characterized in that the laser removes material inside a polygon (9), when the polygon (9) is associated with a gray level (5).
12. Process according to claim 11, characterized in that at least one machining surface (11) is defined inside the polygon (9), with the material being removed line-by-line within the machining surface (11).
13. Process according to claim 9, characterized in that the polygons (9) of two superimposed layers are offset relative to one another, rotated with respect to one another, randomly arranged, or have different sizes, so as not to have common edges.